

APPENDIX G PROJECT REVIEW CHECKLISTS

The checklists which follow have been prepared by OSE to provide assistance to agency facility personnel who are responsible for reviewing design documents and for accepting finished construction on behalf of their agency. These checklists are not intended to be all-inclusive and their use by agencies is completely voluntary. Agencies may freely modify these checklists to reflect their internal standards and project requirements. The use of these checklists in no way constitutes a substitute for the training and experience of agency personnel, nor do they relieve the design professional of any contractual responsibility of providing design services which conform to the applicable codes and standards and to provide construction inspection services.

Checklists have been provided for Plan Reviews, Construction Inspections and Occupancy Inspections. Occupancy Inspections should be conducted after work has been completed that involves occupancy or structural changes. This inspection is intended to verify the basic fire/life and safety elements of the construction area; i.e., the adequacy of means of egress, emergency and exit lighting, interior finish flammability, detection and fire suppression systems, alarms, etc., have been installed and proven to be operational.

STRUCTURAL PLAN REVIEW CHECKLIST

1. Proposed changes in occupancy are checked to verify that any new structural loading is compatible with the rated load capacity of the building. Changes in load-bearing walls shall be checked to assure structural integrity.
2. Interior finishes/systems are checked for appropriate fire resistance ratings.
3. Roofing and structural elements are checked for conformance with code loading and fire rating requirements.
4. Compliance with applicable codes for disabled accessibility are addressed.
5. Foundation load checked:
 - 5.1. Structural loading _____
 - 5.1.1. Floor _____
 - 5.1.2. Roof _____
 - 5.2. Floor construction _____
 - 5.2.1. UL constructed _____
 - 5.3. Roof construction _____
 - 5.3.1. UL constructed? _____
 - 5.4. Load-bearing elements
 - 5.4.1. Columns _____
 - 5.4.2. Walls _____
 - 5.5. Meets disabled code accessibility requirements _____
 - 5.6. Interior finish materials-UL label to be required _____
 - 5.7. Thermal insulation required? _____
 - 5.8. Soundproofing required? _____
 - 5.9. Weatherstripping for noise or moisture? _____
 - 5.10. Fire separations required? _____
 - 5.11. Security issues addressed? _____

PLUMBING, SPRINKLER, AND MECHANICAL SYSTEMS
PLAN REVIEW CHECKLIST

1. AIR SYSTEMS

- 1.1. Fire damper locations, type, flow restrictions adequate height for damper recess.
- 1.2. Adequate balancing dampers?
- 1.3. Relief air provision.
- 1.4. Need for return air fan?
- 1.5. Flexible connections.
- 1.6. Sound lining required?
- 1.7. Objectionable fan noise from intakes to nearby buildings.
- 1.8. Fan class and bearing arrangement.
- 1.9. Will air outlets blow at beams, lights?
- 1.10. Accessibility of chemical exhaust ducts.
- 1.11. Aluminum grills in wet areas.
- 1.12. Adequate relief from rooms been provided, door louvers, undercut, etc.
- 1.13. Intermediate drip pans on cooling coil banks.
- 1.14. Drain for kitchen exhaust duct users.
- 1.15. Combustion air intakes.
- 1.16. Have insulated louver blank-off sheets been included where required?
- 1.17. Filters provided in make-up air to elevator equipment rooms?
- 1.18. Motor-operated dampers in wall louvers?
- 1.19. Have fan systems been checked for excessive noise transmission?
- 1.20. Is there adequate space for servicing fans, motors, belts, etc.?
- 1.21. Adequate service space or equipment size access panels for equipment installed above ceilings.
- 1.22. Are hood exhaust systems balanceable?
- 1.23. Avoid contamination of air intake from exhaust air, contaminated vents, vehicle exhaust, etc.
- 1.24. Are fire and smoke dampers coordinated with fire and smoke walls?
- 1.25. Have ventilation systems been provided for equipment rooms and other non-air-conditioned spaces?
- 1.26. Is air handling system properly ventilated per ASHRAE standards?

2. SPRINKLERS

- 2.1. Pipe size verified?
- 2.2. Head type specified?
- 2.3. Head spacing checked?

3. REFRIGERATION

- 3.1. Is noise from cooling towers likely to be a problem?
- 3.2. Will cooling tower need to be winterized?
- 3.3. Are flow diagrams of refrigeration system needed?
- 3.4. Ethylene glycol required? Capacities de-rated.
- 3.5. Adequate control of chilled water temperature.
- 3.6. Are present and ultimate duties noted where applicable?
- 3.7. Expansion tank size, location, support, water makeup provided?
- 3.8. Provisions for piping expansion and contraction?
- 3.9. Drains and vents on water systems?

- 3.10. Space for coil and tube removal.
- 3.11. Submerged pump impeller on condenser water systems?
- 3.12. Cooling tower make-up overflow?

4. PIPING

- 4.1. Are relief valve settings noted?
- 4.2. Adequate straight pipe up and down stream from flow meter orifices.
- 4.3. Do not run horizontal piping on solid masonry walls or in narrow stud partitions.
- 4.4. Has all piping been eliminated from electrical switchgear, transformer, motor control center, and emergency generator rooms? If not, have drain troughs or enclosures been provided?
- 4.5. Is cathodic protection for buried piping required?
- 4.6. Is heat tracing of outside piping required?
- 4.7. Are end of main drips on steam piping provided?
- 4.8. Will steam condensate piping drain?
- 4.9. Riser drops.
- 4.10. Relief valves piped to outside?
- 4.11. Has steam consumption for humidification been considered for water makeup for boiler?
- 4.12. Avoid cross connections between gravity returns and pumped condensate lines,
- 4.13. Are condensate return systems compatible?
- 4.14. Are chemicals used in treatment system suitable for humidification?
- 4.15. Adequate access to components requiring service on boilers?
- 4.16. On hot water heating system, is a bypass filter required? GPM included on pump capacity?
- 4.17. Is standby pump needed?
- 4.18. Is heating converter supported properly?
- 4.19. Riser shut-off valves provided?
- 4.20. Is distribution system reverse return? If not, will balancing problems result?

5. CONTROLS

- 5.1. Are thermostat and humidistat locations indicated? Avoid mounting stats on outside walls.
- 5.2. Settings and schedules.
- 5.3. Are temperature tolerances in lab areas clearly understood?
- 5.4. Have reheat coils requiring full capacity in summer been supplied from a constant temperature hot water supply?
- 5.5. Are all AHU and systems accounted for on control design?
- 5.6. Are direct digital controls appropriate?

6. PLUMBING

- 6.1. Maintain minimum cover on sewers for entire run.
- 6.2. Are plumbing fixtures specified?
- 6.3. Are back-water valves connected to storm water below grade or where possible above grade?
- 6.4. Are deep seal traps required for AHUs?
- 6.5. Drains for overflows?
- 6.6. Are grease or sand and oil interceptors required?
- 6.7. Floor drains required for air handling and other equipment.
- 6.8. Does general piping or equipment interfere with overhead door's travel?
- 6.9. Adequate AHU pad height to allow condensate drain from pan to be properly drained?
- 6.10. Is air conditioning drain piped to storm water if possible?

- 6.11. Is automatic trap priming system required?
- 6.12. Are disabled fixtures required?
- 6.13. Minimum size vent through roof indicated.
- 6.14. Fixtures and drains trapped and vented in accordance with applicable code?
- 6.15. Is cooling tower overflow and drain piped up?
- 6.16. Adequate sanitary clean-outs?
- 6.17. Pressure-regulating valve required on water system?
- 6.18. Provisions for piping expansion on domestic hot water?
- 6.19. Have wall hydrants been provided?
- 6.20. Hot water recirculating pump required?
- 6.21. Are backflow preventors provided?
- 6.22. Eyewash units or other safety equipment provided.

7. MISCELLANEOUS

- 7.1. Drip pockets if gas lines cannot drain back to meter. Adequate space for pitch.
- 7.2. Gas vent valves and vent from pressure-regulating valves piped to outside.
- 7.3. Underground fuel oil tank location coordinated with site plan. Adequate cover?
- 7.4. Truck traffic considered?
- 7.5. Is specified tank suitable for installation? Coordinate with Safety Department?
- 7.6. Is the extent of removal of existing work clearly defined?
- 7.7. Coordinate clearances between lighting fixtures and ducts and pipes.
- 7.8. Coordinate clearances between conduits out of electrical panels and nearby ducts and pipes.
- 7.9. Structure OK for new equipment in existing buildings.
- 7.10. Heating of bathrooms.
- 7.11. Has specified equipment been properly described by current model designation?
- 7.12. Have all items specified "As Indicated on Drawings" been coordinated?
- 7.13. Space for future ducts, pipes, equipment indicated?
- 7.14. Has existing area been adequately field checked?
- 7.15. Have chain operators for valves more than 10 ft. 0 in. above the floor been supplied?
- 7.16. Have applicable codes been researched?
- 7.17. Are bird screens provided for outside louvers?
- 7.18. Has access to roof-mounted equipment been provided?
- 7.19. Have provisions for equipment replacement been made?
- 7.20. Have air ceiling plenums been coordinated with electrical? Is plenum area sealed where required?
- 7.21. Have vibration isolators been provided?
- 7.22. Have equipment location and weights been provided?
- 7.23. Have all floor and roof openings been coordinated?
- 7.24. Any sleeved beams? Coordinated?
- 7.25. Catwalks required?

ELECTRICAL PLAN REVIEW CHECKLIST

Listed below are the electrical parameters that should be reviewed for compliance with the latest editions of the NFPA70 (National Electric Code) and other applicable codes:

Electrical service	Receptacles
Switchgear & transformers	Motors & controls
Feeders & wiring	Lighting
Panel-boards	Emergency generator & system
Grounding	Electric heating
Dry type transformers	Fire alarm system

1. ELECTRIC SERVICE

- 1.1. Type of service and size
- 1.2. Voltage and phase
- 1.3. Size in amperes
- 1.4. Conductor and conduit sizes
- 1.5. Service disconnecting means size
- 1.6. Interrupting rating
- 1.7. Grounding
- 1.8. No pressure piping in vicinity
- 1.9. Underground or overhead

2. SWITCHGEAR AND TRANSFORMER ROOMS

- 2.1. Size
- 2.2. Type
- 2.3. Disconnecting means
- 2.4. Conductor and conduit sizes (primary and secondary)
- 2.5. Grounding (grid)
- 2.6. Two paths of exit from transformer and switchgear room
- 2.7. Clearance for equipment entrance and exit
- 2.8. Liquid retention curb around transformers or spaces
- 2.9. Ground fault protection provided on 480-V services 1000 amps or over

3. FEEDERS AND WIRING

- 3.1. Runs indicated on plans
- 3.2. Access and size of junction boxes, pull boxes, and wire way
- 3.3. Check size of wire and conduit
- 3.4. Check overcurrent protection of feeders
- 3.5. Wiring method for type of occupancy
- 3.6. Check for environmental air ceilings
- 3.7. Hazardous areas

4. PANELBOARDS

- 4.1. Check electrical riser diagram for panelboard and feeder schedules
- 4.2. NEC clearance in front.
- 4.3. Wall thickness if flush mounted.
- 4.4. Branch circuit grouping in multiple gang panels does not violate NEC.
- 4.5. Circuit directories provided.

5. **GROUNDING**
 - 5.1. Water service connection
 - 5.2. Secondaries of dry type transformers
 - 5.3. Telephone equipment rooms
 - 5.4. Sizes in accordance with NEC
6. **DRY TYPE TRANSFORMERS**
 - 6.1. Ventilation when installed in spaces
 - 6.2. Clearance for cooling
 - 6.3. Grounding of secondaries
7. **RECEPTACLES**
 - 7.1. Check grouping of circuits
 - 7.2. Cleaning receptacles in corridors and lobbies
 - 7.3. Mounting heights if nonstandard
 - 7.4. At telephone terminal boards (on emergency if available)
 - 7.5. Not installed behind shelving, cabinets, etc.
8. **MOTORS AND CONTROLS**
 - 8.1. Check for appropriate voltage and phase
 - 8.2. Overcurrent protection properly sized
 - 8.3. Power factor correction capacitors
 - 8.4. Motor starters and control centers properly sized
 - 8.5. Disconnect switches provided where required by NEC
9. **LIGHTING**
 - 9.1. All spaces have lighting
 - 9.2. Check lighting types and voltages
 - 9.3. Check latest ceiling finishes for proper fixture
 - 9.4. Recessed fixtures coordinated with structural and mechanical obstructions
 - 9.5. Exit signs
 - 9.6. Emergency lighting
 - 9.7. Means for relamping fixtures in high locations.
 - 9.8. Stairway lighting on emergency circuits with alternate landings on separate circuits.
 - 9.9. Support of fixtures (specification)
10. **EMERGENCY GENERATOR AND EMERGENCY SYSTEM**
 - 10.1. Check kW, voltage, and phase
 - 10.2. Type of fuel
 - 10.3. Day tank required
 - 10.4. Ventilation of room
 - 10.5. Water jacket heater
 - 10.6. Location of exhaust termination
 - 10.7. Panels connected to emergency system
 - 10.8. Egress lighting and exit signs in accordance with all life safety codes, ADA.
11. **ELECTRIC HEATING**
 - 11.1. Verify fixed electrical space heating circuits and over-current protection
 - 11.2. Bathroom heaters-no exposed elements-low surface temperature

11.3. Electric heat tracing

11.4. Duct heaters and disconnects

12. FIRE ALARM SYSTEM

12.1. Review by fire alarm systems technician.

FINAL SAFETY AND CODE REVIEW

1. The following safety parameters should be evaluated in relation to fire safety (FS), means of egress and general safety (GS), where applicable, for occupancy and structural changes.

Building height	Occupancy load
Building area	Exit capacity
Fire area	Dead-end corridors
Space division	Maximum exit access travel distance
Corridor walls/doors	Elevator control
Interior finishes	
Vertical openings	Means of egress lighting
HVAC systems	Means of egress emergency lighting
Automatic fire detection	Mixed occupancy use considerations
Fire protective signaling	Automatic sprinklers
Smoke control systems	Special fire control/suppression
2. The above safety parameters should be reviewed for compliance with the Standard Building Code, and other national fire codes as adopted by the Office of State Engineer. In addition, the review process should evaluate the proposed design against the fire safety criteria established by the State Fire Marshall. Installed fire protection systems are further reviewed for compliance with NFPA specifications for fire alarm systems, early warning detection equipment, automatic sprinkler systems, Halon systems, carbon dioxide systems, dry chemical systems, and any other special fire protection equipment.

STRUCTURAL CONSTRUCTION CHECKLIST

The structural inspection should be conducted at the beginning of construction and repeated as necessary as construction proceeds and until all deficient work is corrected.

1. FOUNDATION

- 1.1. Soil Bearing Test performed, if necessary?
- 1.2. Subgrade free from mud, standing water, and frost?
- 1.3. Subgrade adequately compacted?
- 1.4. Reinforcing properly placed?

2. CONCRETE

- 2.1. Delivery ticket checked for appropriate mix strength, air entrainment admixtures?
- 2.2. Concrete forms checked for trueness and bracing?
- 2.3. Appropriate hot or cold weather precautions taken?

3. STRUCTURAL

- 3.1. All load-bearing elements plumb and braced?
- 3.2. Structural connections visually checked before covering?
- 3.3. Steel members fire-proofed?
- 3.4. Non-full-height partition walls adequately braced?
- 3.5. Penetrations through fire-rated assemblies sealed (especially above ceiling penetrations)?

4. INSULATION

- 4.1. Thermal and/or noise insulation checked for gaps or sagging?
- 4.2. Moisture barrier checked for rips/tears?

5. INTERIOR FINISHES

- 5.1. Check for UL labels on rated assemblies and materials prior to installation?
- 5.2. Ensure proper installation of UL listed assemblies and materials?
- 5.3. Weatherstripping for noise or moisture installed?
- 5.4. Above ceiling penetrations sealed?
- 5.5. Door swings are proper and have adequate clearances?

PLUMBING, SPRINKLER, AND MECHANICAL SYSTEMS
CONSTRUCTION CHECKLIST

The plumbing, sprinkler, and mechanical system construction inspection is conducted at appropriate times during the construction and is repeated until all deficiencies are corrected.

1. AIR SYSTEMS

- 1.1. Fire dampers located properly?
- 1.2. Are balancing dampers opened?
- 1.3. Do AHUs have flexible connections?
- 1.4. Is there objectionable fan noise from intakes to nearby buildings?
- 1.5. Do air outlets blow at beams, lights?
- 1.6. Are chemical exhaust ducts accessible?
- 1.7. Is there adequate relief from rooms provided?
- 1.8. Are insulated louver blank-offs provided?
- 1.9. Are motor-operated dampers provided at wall louvers?
- 1.10. Is equipment producing excessive noise?
- 1.11. Is there adequate space for servicing equipment?

2. REFRIGERATION

- 2.1. Has ethylene glycol been provided for cooling tower if required?
- 2.2. Space for coil and tube removal?
- 2.3. Is cooling tower noise a problem?
- 2.4. Will cooling tower discharge air pocket or recirculate?
- 2.5. Has single-phase protection been included for packaged (single and/or split systems) air conditioning and heat pump compressor motors?
- 2.6. Space for servicing?
- 2.7. Is relief piping to outdoors?

3. PIPING

- 3.1. Is expansion tank connected to cold water system?
- 3.2. Have piping expansion loops or joints been provided as shown on plans?
- 3.3. Are there adequate drains and vents on the piping systems?
- 3.4. Is there adequate straight pipe up and down stream from flow meter orifices?
- 3.5. Is there piping located in electrical switchgear, transformer, motor control, and emergency generator rooms? If it is, have enclosures or drain troughs been provided?
- 3.6. Is piping insulation properly installed and sealed?
- 3.7. Outside water piping heat traced?
- 3.8. Are end-of-main drips provided on new steam piping?
- 3.9. Are riser drips provided?

4. CONTROLS

- 4.1. Panel location?
- 4.2. Thermostats mounted on outside walls?
- 4.3. Are smoke detector and fire stats connected to fire detection systems?
- 4.4. Are controls working as designed?
- 4.5. Are control dampers set properly?
- 4.6. Valve positions indicated where applicable?

5. PLUMBING

- 5.1. Has minimum cover been provided for outside sewer for entire run?
- 5.2. Are back-water valves connected to storm water below grade?
- 5.3. Are plumbing fixtures properly vented and trapped?
- 5.4. Are there adequate sanitary clean-outs?
- 5.5. Are vacuum breakers on hose type faucets provided?
- 5.6. Have finished area and plumbing fixtures been properly cleaned?
- 5.7. Have hot and cold domestic water been properly insulated where susceptible to sweating and freezing?
- 5.8. Do plumbing fixtures have water shut-off valves?

6. SPRINKLER SYSTEM

- 6.1. Is pipe size per plan?
- 6.2. Has head spacing been checked?
- 6.3. Are pipes properly supported?

7. MISCELLANEOUS

- 7.1. Do gas lines have proper drip legs where required?
- 7.2. Are gas vents piped to outside?
- 7.3. Are penetrations properly firestopped?
- 7.4. Are bathrooms heated?
- 7.5. Have chain-operated valves been provided for valves located more than 10 ft 0 in. above floor?
- 7.6. Is there bird screen located behind outside air louver?
- 7.7. Has access to roof-mounted equipment been provided?
- 7.8. Have provisions for equipment cleaning and replacement been provided?
- 7.9. Is access to equipment with electrical connections adequate to satisfy the National Electric Code?
- 7.10. Is minimum head room maintained in equipment rooms?
- 7.11. Adequate clearance for removal of ceiling systems for access to equipment?
- 7.12. Is equipment properly supported?
- 7.13. Are piping, ductwork, and equipment properly identified?

ELECTRICAL SYSTEMS CONSTRUCTION CHECKLIST

The electrical system construction inspection is conducted according to the progress of construction. Rough-in inspections should be performed before ceilings, walls, and trenches are closed in. The process should be repeated until all deficiencies are corrected.

1. GENERAL

- 1.1. Verify that all work has been done in a neat and workmanlike manner and in accordance with drawings and specifications.

2. ELECTRIC SERVICE

- 2.1. Proper NEC clearances
- 2.2. No pressure piping in vicinity
- 2.3. Grounding in accordance with NEC

3. SWITCHGEAR AND TRANSFORMER ROOMS

- 3.1. Proper NEC clearances
- 3.2. No pressure piping in vicinity
- 3.3. Grounding in accordance with NEC
- 3.4. Clearance for equipment entrance and exit

4. FEEDERS AND WIRING

- 4.1. Proper access to junction boxes, pull-boxes, etc.
- 4.2. Properly supported (EMT, Greenfield, and BX)
- 4.3. Wiring properly color-coded

5. PANELBOARDS

- 5.1. Proper NEC clearances
- 5.2. No pressure piping in vicinity
- 5.3. Grounding in accordance with NEC
- 5.4. All unused openings shall be closed

6. GROUNDING

- 6.1. In accordance with NEC

7. DRY TYPE TRANSFORMERS

- 7.1. Installed in accordance with NEC

8. RECEPTACLES

- 8.1. Outlet box wiring capacity in accordance with NEC
- 8.2. Properly grounded
- 8.3. Polarity
- 8.4. All unused openings in boxes shall be closed

9. MOTORS AND CONTROLS

- 9.1. Motors and controls properly terminated
- 9.2. Power factor correction capacitors connected

10. LIGHTING

- 10.1. Fixtures properly supported
- 10.2. All wiring and conduit properly supported above ceiling
- 10.3. Fixtures in all spaces
- 10.4. All unused openings shall be closed

10.5. Emergency lighting operational

11. EMERGENCY GENERATOR & EMERGENCY SYSTEM

11.1. Installation in accordance with drawings and specifications

11.2. Ventilation

11.3. Exhaust termination

11.4. Daytank wiring and piping

12. ELECTRIC HEATING

12.1. Installed where indicated on drawings

12.2. Rough-in properly sized

13. FIRE ALARM SYSTEM

13.1. Outlet boxes for devices roughed-in where indicated on drawings

13.2. Conduit rough-in

13.3. Cable pulled and properly terminated

13.4. Devices programmed and installed

STRUCTURAL OCCUPANCY CHECKLIST

A Structural Occupancy inspection is conducted to assure that the construction has been completed as required by the appropriate codes and to the agency's satisfaction. The process is repeated until all deficiencies are corrected.

1. Has each trade completed its work?_____Carpenters/Masons?_____Painters?
2. Mechanical Final Inspection completed?
3. Electrical Final Inspection completed?
4. Wall and ceiling assemblies intact?
5. Penetration properly firestopped?
6. Walls and door trim painted?
7. Vinyl base installed?
8. Coat racks installed?
9. Locksets installed?
10. Room numbers installed?
11. ADA compliance for disabled accessibility checked?
12. Receptacles, telephones, and switch plates installed?
13. Security issues for closed areas addressed?
14. Housekeeping contacted for final cleanup?

PLUMBING, SPRINKLER, AND MECHANICAL OCCUPANCY CHECKLIST

A Plumbing, Sprinkler, and Mechanical Occupancy inspection is conducted to verify the work has been completed as required by the applicable codes and to the agency's satisfaction. The inspection process is repeated until all deficiencies are corrected. The systems listed are in accordance with all applicable codes and are fully operational:

1. Mechanical equipment and appliances
2. Air distribution systems
3. Ventilation air
4. Boilers and water heaters
5. Chimney and vents
6. Fuel oil piping
7. Gas piping
8. Sprinkler system
9. Air quality
10. Mechanical refrigeration
11. Plumbing fixtures
12. Drainage system
13. Venting
14. Interceptors
15. Water supply and distribution
16. Materials

ELECTRICAL SYSTEMS OCCUPANCY INSPECTION CHECKLIST

An Electrical acceptance inspection is conducted to verify that the work has been completed as required by the applicable codes and to the agency's satisfaction. The inspection process is repeated until all deficiencies are corrected. The systems listed below are complete and fully operational:

1. Electric service
2. Switchgear and transformer rooms
3. Feeders and wiring
4. Panelboards-all directories completed
5. Grounding
6. Dry type transformers
7. Receptacles
8. Motors and controls
9. Lighting
10. Emergency generator and emergency system
11. Electric heating
12. Fire alarm system

FIRE SAFETY SYSTEMS OCCUPANCY INSPECTION CHECKLIST

A Fire Safety Systems acceptance inspection is conducted on new or reconfigured spaces or changes in occupancy classification prior to the new occupancy to verify the work has been completed as required by the applicable codes and to the agency's satisfaction. The inspection process is repeated until all deficiencies are corrected. Installed fire protection devices are tested for proper operation as follows and as required by the State Fire Marshall:

1. Automatic Sprinkler Systems: Hydrostatic test, drain test, and inspectors test.
2. Halon and Carbon Dioxide Systems: Fan test or concentration test as required, cylinder activation test, and sequential test on alarm devices.
3. Dry Chemical Local Application Systems: Dump test on manual pull station and detector activation test.
4. Evacuation Alarm System: Pull Station Ring test and trouble signal test.
5. Fire Detection System: Smoke test on detectors and trouble signal test.